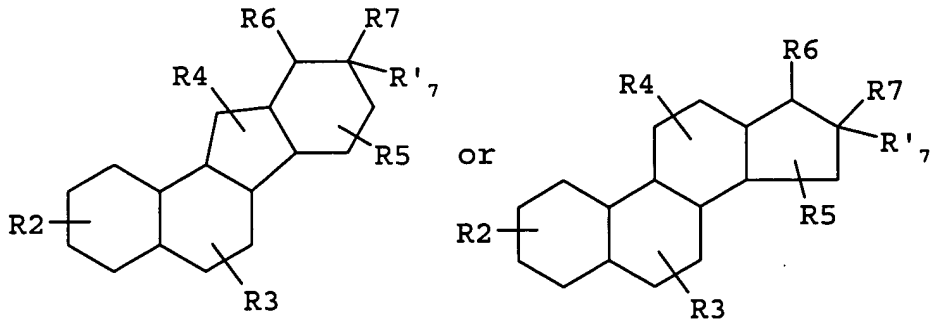
We claim:

1. A compound represented in the general forumlas (I), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula I

wherein, as valence and stability permit,

R_2, R_3, R_4, and R_5, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, sugar, carbamate, carbonate, or $-(CH_2)_m-R_8$;

R_6, R_7, and R'_7, are absent or represent, independently, halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$, and

either R_6 and R_7, or R_7 and R'_7, taken together, form a susbstituted or unsubstituted ring or polycycle, and which includes a tertiary amine in the atoms which make up the ring;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle; and

m is an integer in the range 0 to 8 inclusive.

2. The compound of claim 1, wherein:

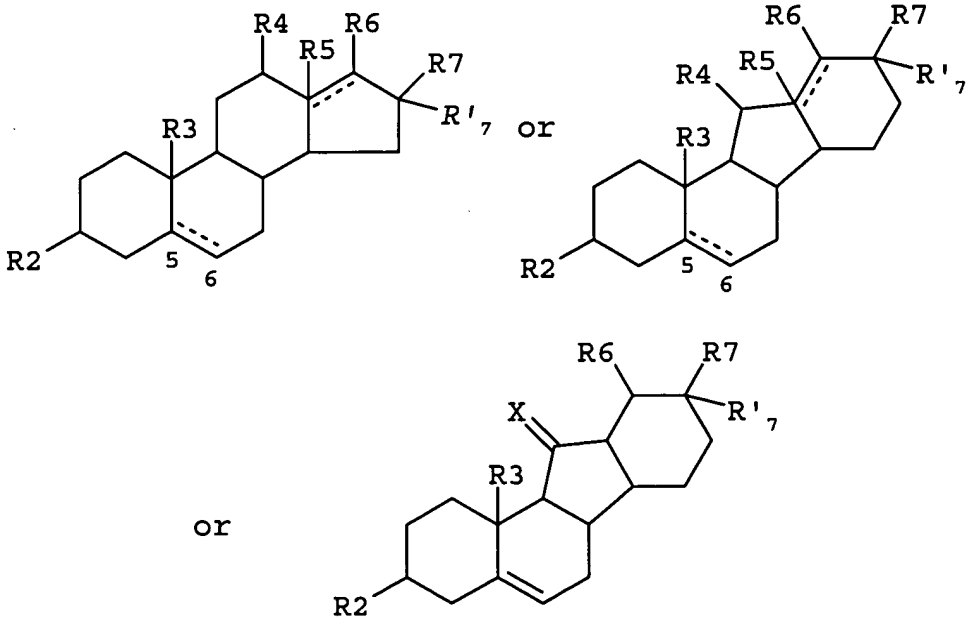
R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

3. A compound represented in the general formula (II), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula II

wherein

R_2, R_3, R_4, and R_5, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, sugar, carbamate, carbonate, or $-(CH_2)_m-R_8$;

R_6, R_7, and R'_7, are absent or represent, independently, halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$, and

either R_6 and R_7, or R_7 and R'_7, taken together, form a susbstituted or unsubstituted ring or polycycle, and which includes a tertiary amine in the atoms which make up the ring;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle;

X represents O or S; and

m is an integer in the range 0 to 8 inclusive.

4. The compound of claim 3, wherein:

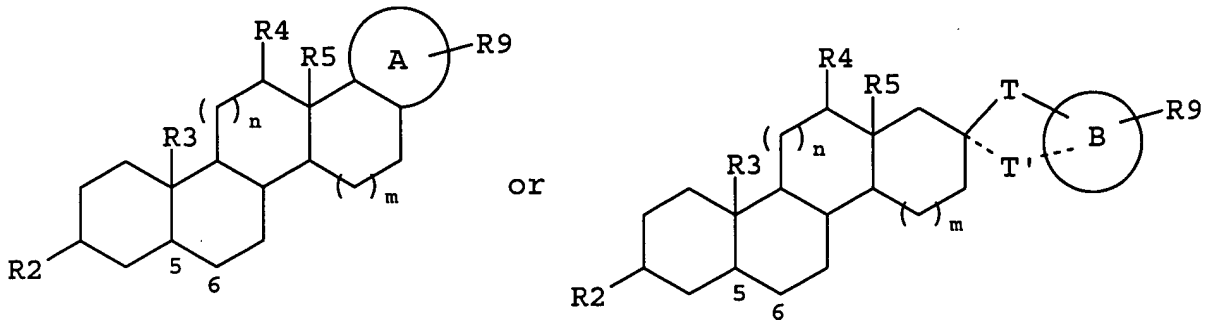
R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

8. A compound represented in the general formula (III), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula III

wherein

R_2, R_3, R_4, and R_5, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, sugar, carbamate, carbonate, or $-(CH_2)_m-R_8$;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle;

A and B represent monocyclic or polycyclic groups;

T represents an alkyl, an aminoalkyl, a carboxyl, an ester, an amide, ether or amine linkage of 1-10 bond lengths;

T' is absent, or represents an alkyl, an aminoalkyl, a carboxyl, an ester, an amide, ether or amine linkage of 1-3 bond lengths, wherein if T and T' are both present, T and T' taken together with the ring B form a covalently closed ring of 5-8 ring atoms;

R_9 is absent or, independently for each occurrence, represents one or more substitutions to the ring to which it is attached, selected from halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$; and

n and m are, independently, zero, 1 or 2;

with the proviso that A, or T, T', and B, taken together, include at least one tertiary amine.

6. The compound of claim 5, wherein:

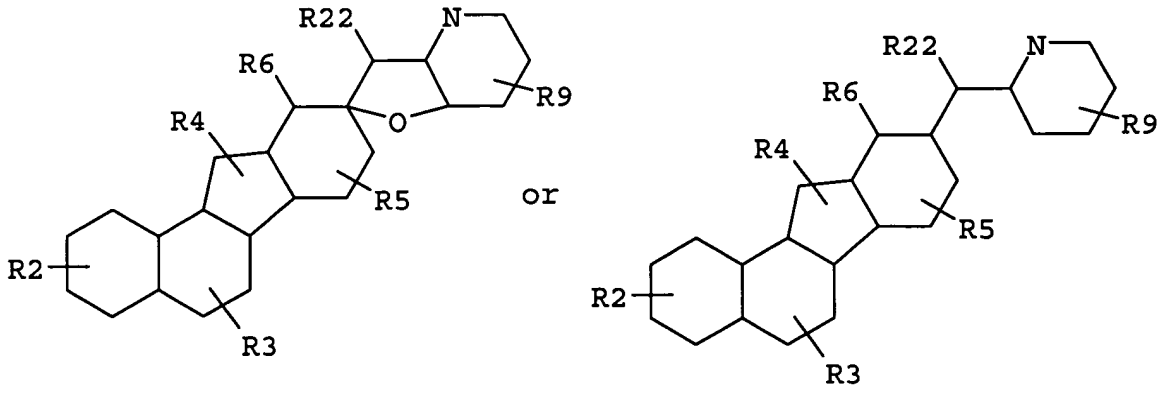
R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

7. A compound represented in the general formula (IV), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula IV

wherein

R_2, R_3, R_4, and R_5, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R_6 is absent or represents, independently, halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle;

R_9 is absent or, independently for each occurrence, represents one or more substitutions to the ring to which it is attached, selected from halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$; and

R_{22} is absent or represents an alkyl, an alkoxyl or –OH,

wherein at least one occurrence of R_9 is bound to N, thereby forming a tertiary amine.

8. The compound of claim 7, wherein:

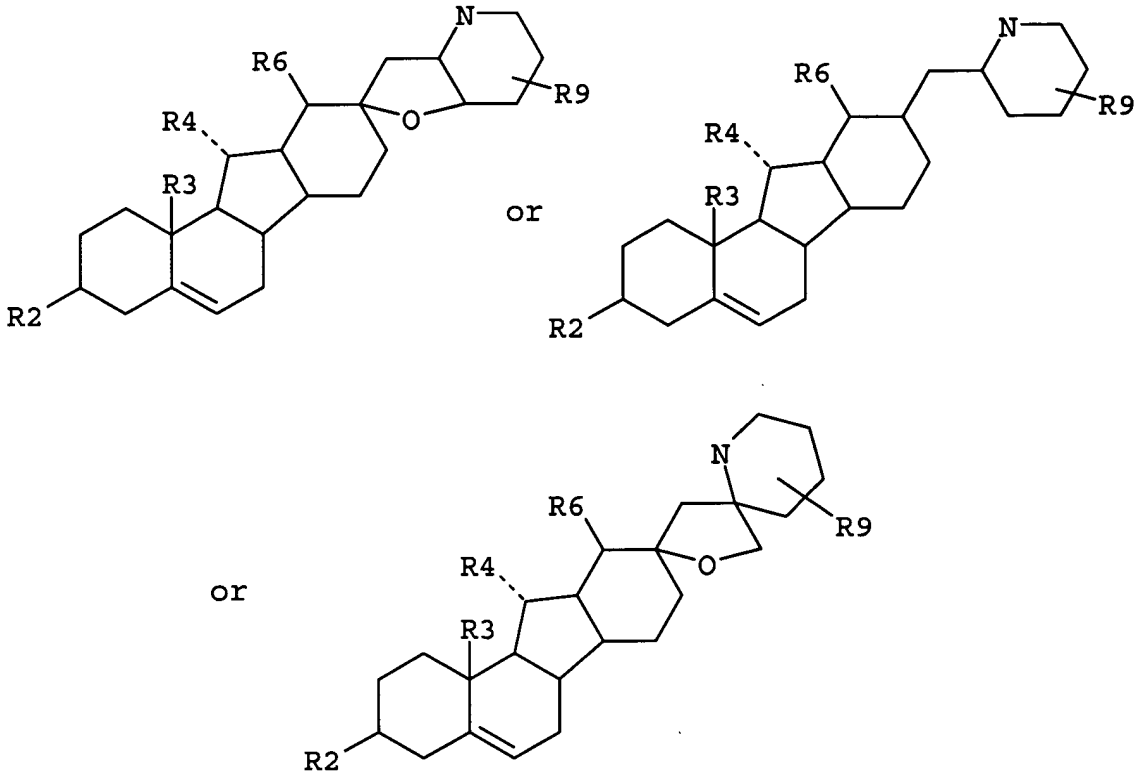
R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

9. A compound represented in the general formula (V) or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula V

R_2, R_3, and R_4, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R_6 is absent or represents halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle; and

R_9 is absent or, independently for each occurrence, represents one or more substitutions to the ring to which it is attached, selected from halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$;

wherein at least one occurrence of R_9 is attached to N, thereby forming a tertiary amine.

10. The compound of claim 9, wherein:

R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

11. A method for treating basal cell carcinoma, comprising administering to a patient a compound of any of claims 1-10.

12. The method of claim 11, wherein the compound is administered locally to a tumor.

13. A method for regulating differentiation or proliferation of a cell, comprising administering to a patient a compound of any of claims 1-10.

14. A method for controlling the growth or development of pancreatic tissue, comprising contacting the tissue with a compound of any of claims 1-10.

15. A method for treating medulloblastoma, comprising administering to a patient a compound of any of claims 1-10.

16. The method of claim 15, wherein the compound is administered locally to a tumor.

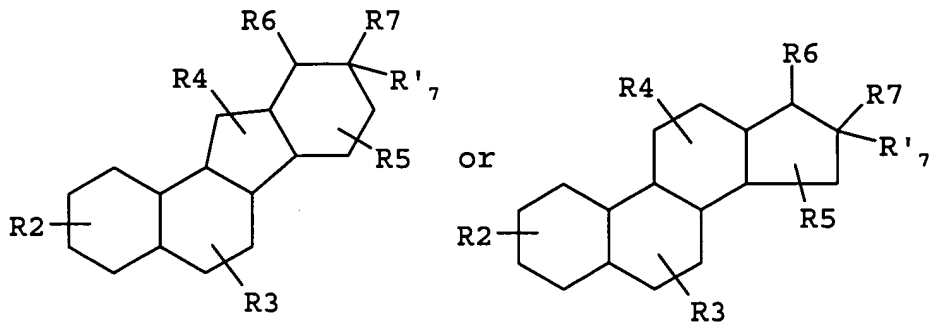
17. A method for treating a hyperproliferative disorder, comprising administering to a patient a compound of any of claims 1-10.

18. The method of claim 17, wherein the compound is administered topically.

19. The method of claim 17, wherein the compound is administered locally.

20. A pharmaceutical preparation comprising a compound of any of claims 1-10 and a pharmaceutically acceptable excipient.

21. A method for inhibiting *hedgehog* signaling or counteracting a *ptc* loss-of-function phenotype or a *smoothened* gain-of-function phenotype, comprising contacting the cell with a steroidal alkaloid represented in the general forumlas (I), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula I

wherein, as valence and stability permit,

R_2, R_3, R_4, and R_5, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, sugar, carbamate, carbonate, or $-(CH_2)_m-R_8$;

R_6, R_7, and R'_7, are absent or represent, independently, halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$, and

either R_6 and R_7, or R_7 and R'_7, taken together, form a susbstituted or unsubstituted ring or polycycle, and which includes a tertiary amine in the atoms which make up the ring;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle; and

m is an integer in the range 0 to 8 inclusive.

22. The method of claim 21, wherein:

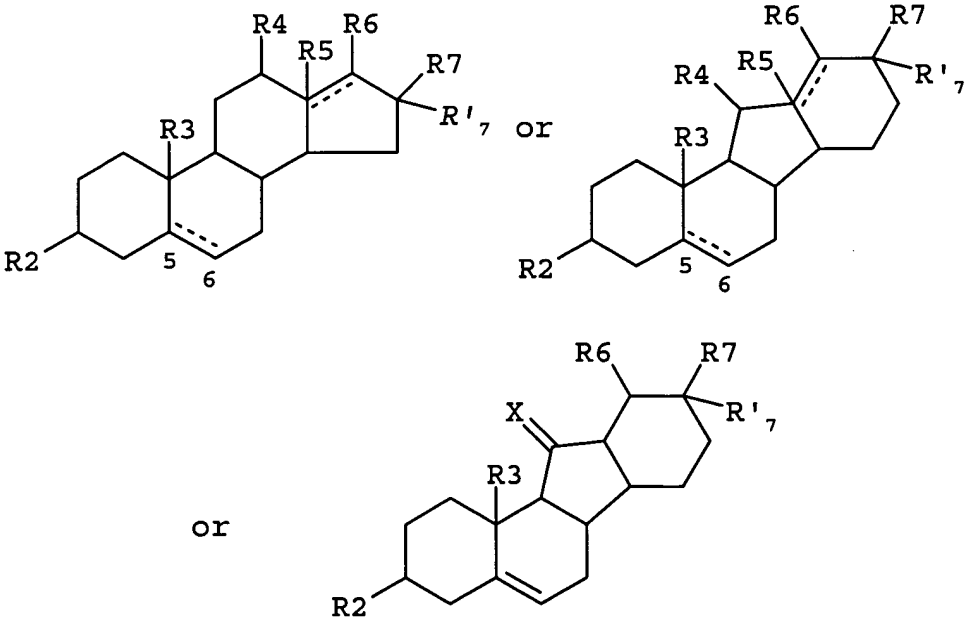
R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

23. A method for inhibiting *hedgehog* signaling or counteracting a *ptc* loss-of-function phenotype or a *smoothened* gain-of-function phenotype, comprising contacting the cell with a steroidal alkaloid represented in the general formula (II), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula II

wherein

R_2, R_3, R_4, and R_5, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen,

halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, sugar, carbamate, carbonate, or $-(CH_2)_m-R_8$;

R_6, R_7, and R'_7, are absent or represent, independently, halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$, and

either R_6 and R_7, or R_7 and R'_7, taken together, form a susbstituted or unsubstituted ring or polycycle, and which includes a tertiary amine in the atoms which make up the ring;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle;

X represents O or S; and

m is an integer in the range 0 to 8 inclusive.

24. The method of claim 23, wherein:

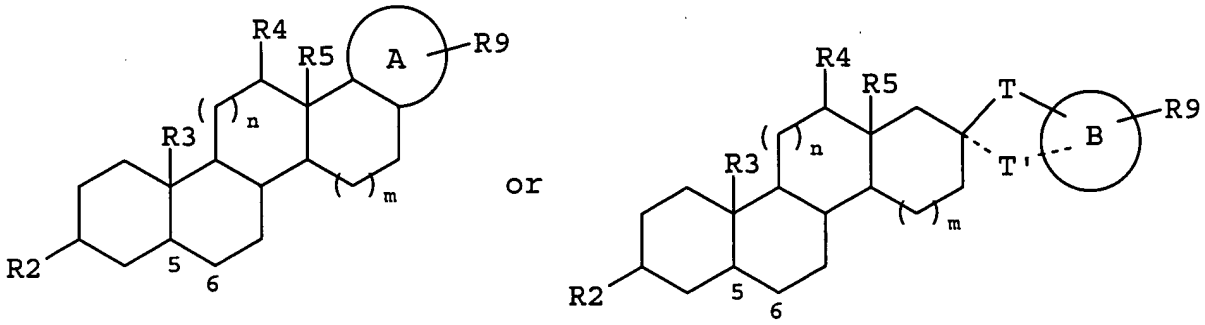
R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

25. A method for inhibiting *hedgehog* signaling or counteracting a *ptc* loss-of-function phenotype or a *smoothened* gain-of-function phenotype, comprising contacting the cell with a steroidal alkaloid represented in the general formula (III), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula III

wherein

R_2, R_3, R_4, and R_5, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, sugar, carbamate, carbonate, or $-(CH_2)_m-R_8$;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle;

A and B represent monocyclic or polycyclic groups;

T represents an alkyl, an aminoalkyl, a carboxyl, an ester, an amide, ether or amine linkage of 1-10 bond lengths;

T' is absent, or represents an alkyl, an aminoalkyl, a carboxyl, an ester, an amide, ether or amine linkage of 1-3 bond lengths, wherein if T and T' are both present, T and T' taken together with the ring B form a covalently closed ring of 5-8 ring atoms;

R_9 is absent or, independently for each occurrence, represents one or more substitutions to the ring to which it is attached, selected from halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$; and

n and m are, independently, zero, 1 or 2;

with the proviso that A, or T, T', and B, taken together, include at least one tertiary amine.

26. The method of claim 25, wherein:

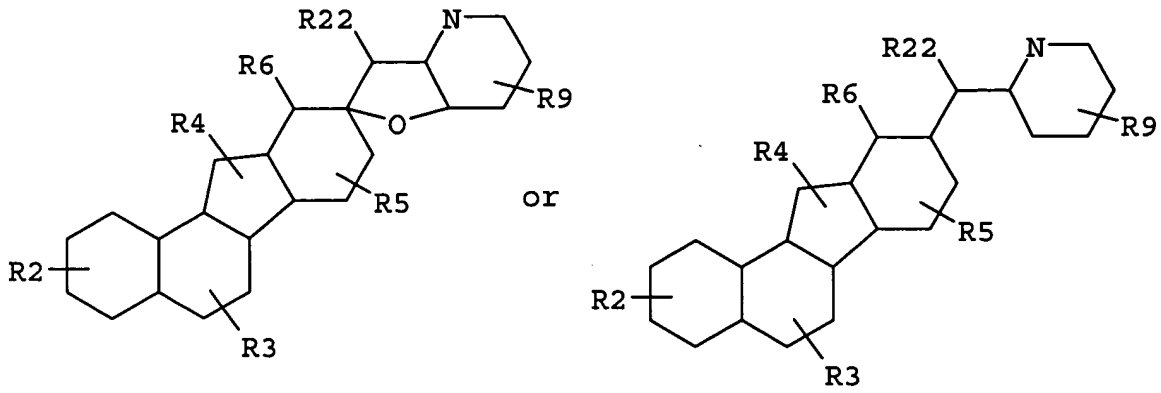
R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

27. A method for inhibiting *hedgehog* signaling or counteracting a *ptc* loss-of-function phenotype or a *smoothened* gain-of-function phenotype, comprising contacting the cell with a steroidal alkaloid represented in the general formula (IV), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula IV

wherein

R_2, R_3, R_4, and R_5, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R_6 is absent or represents, independently, halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle;

R_9 is absent or, independently for each occurrence, represents one or more substitutions to the ring to which it is attached, selected from halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$; and

R_{22} is absent or represents an alkyl, an alkoxyl or –OH,

wherein at least one occurrence of R_9 is bound to N, thereby forming a tertiary amine.

28. The method of claim 27, wherein:

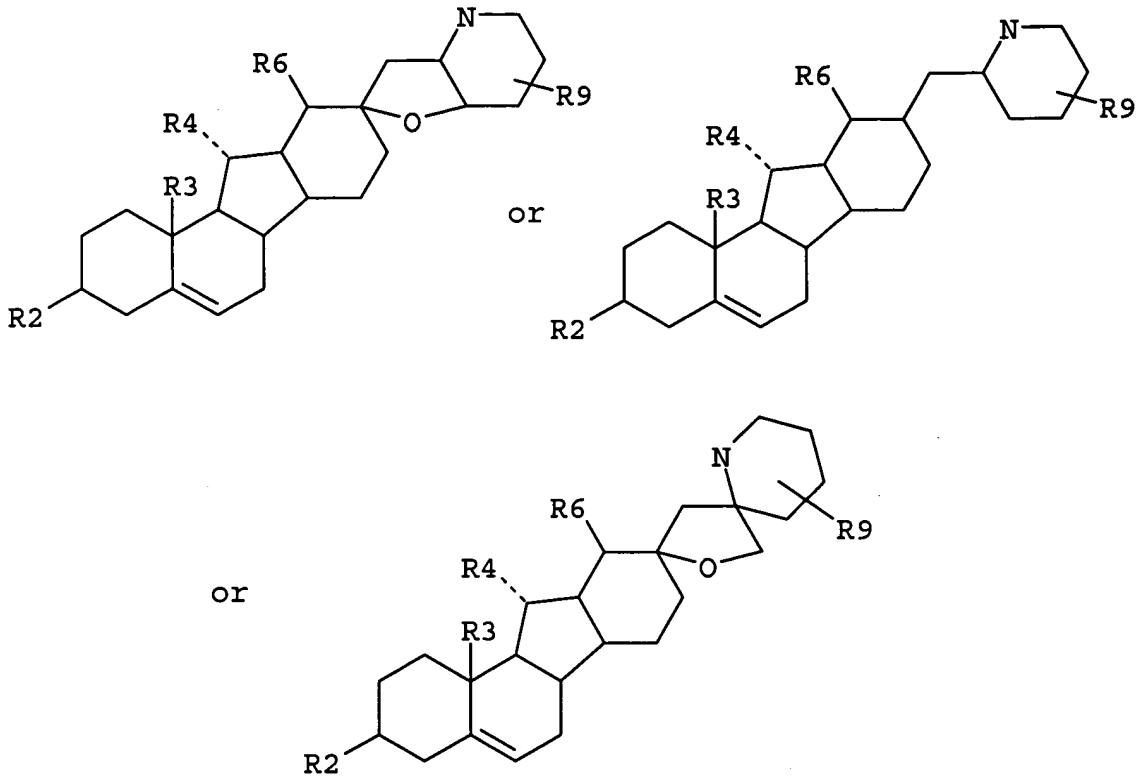
R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

29. A method for inhibiting *hedgehog* signaling or counteracting a *ptc* loss-of-function phenotype or a *smoothened* gain-of-function phenotype, comprising contacting the cell with a steroidal alkaloid represented in the general formula (V) or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula V

R_2, R_3, and R_4, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, or $-(CH_2)_m-R_8$;

R_6 is absent or represents halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle; and

R_9 is absent or, independently for each occurrence, represents one or more substitutions to the ring to which it is attached, selected from halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl, carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$;

wherein at least one occurrence of R_9 is attached to N, thereby forming a tertiary amine.

30. The method of claim 29, wherein:

R_2 represents =O, sugar, carbamate, ester, carbonate, or alkoxy;

R_3, for each occurrence, is an -OH, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8;

R_4, for each occurrence, is absent, or represents -OH, =O, alkyl, -O-alkyl, -C(O)-alkyl, or -C(O)-R_8; and

R_5, for each occurrence, is absent, or represents -OH, =O, or alkyl.

31. The method of any of claims 21-30, wherein the tertiary amine includes a hydrophobic extraannular substituent.

32. The method of claim 31, wherein the hydrophobic extraannular substituent includes an aryl, heteroaryl, carbocyclyl, heterocyclyl, or polycyclyl group.

33. The method of claim 32, wherein the hydrophobic extraannular substituent includes a polycyclyl group selected from biotin, a zwitterionic complex of boron, and a steroidal polycycle.

34. The method of claim 31, wherein the hydrophobic substituent consists essentially of a combination of alkyl, amido, acylamino, ketone, ester, ether, halogen, alkenyl, alkynyl, aryl, aralkyl, urea, or similar functional groups, including between 5 and 40 non-hydrogen atoms.

35. The method of any of claims 21-30, wherein the steroidal alkaloid inhibits *ptc* loss-of-function or *smoothened* gain-of-function mediated signal transduction with an ED_{50} of 1 mM or less.

36. The method of any of claims 21-30, wherein the steroidal alkaloid inhibits *ptc* loss-of-function or *smoothened* gain-of-function mediated signal transduction with an ED_{50} of 1 μM or less.

37. The method of any of claims 21-30, wherein the steroidal alkaloid inhibits *ptc* loss-of-function or *smoothened* gain-of-function mediated signal transduction with an ED_{50} of 1 nM or less.

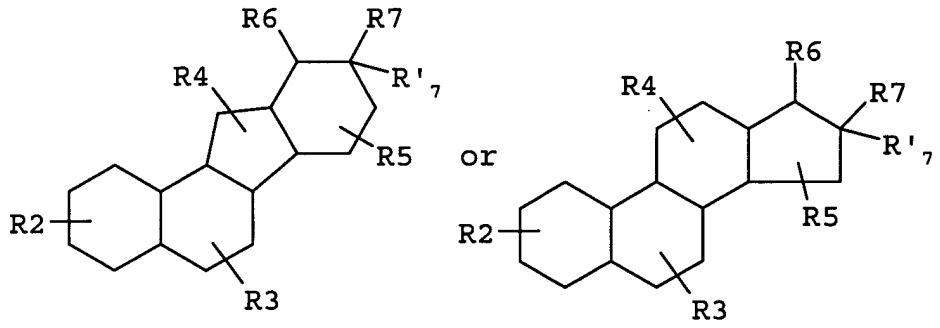
38. The method of any of claims 21-30, wherein the cell is contacted with the steroidal alkaloid *in vitro*.

39. The method of any of claims 21-30, wherein the cell is contacted with the steroidal alkaloid *in vivo*.

40. The method of any of claims 21-30, wherein the steroidal alkaloid is administered as part of a therapeutic or cosmetic application.

41. The method of claim 40, wherein the therapeutic or cosmetic application is selected from the group consisting of regulation of neural tissues, bone and cartilage formation and repair, regulation of spermatogenesis, regulation of smooth muscle, regulation of lung, liver and other organs arising from the primative gut, regulation of hematopoietic function, and regulation of skin and hair growth.

42. A pharmaceutical preparation comprising a pharmaceutically acceptable excipient and a steroidal alkaloid represented in the general formulas (I), or unsaturated forms thereof and/or seco-, nor- or homo-derivatives thereof:



Formula I

wherein, as valence and stability permit,

R_2, R_3, R_4, and R_5, independently for each occurrence, represent one or more substitutions to the ring to which each is attached, selected from hydrogen, halogens, alkyls, alkenyls, alkynyls, aryls, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amines, imines, amides, phosphoryls, phosphonates, phosphines, carbonyls, carboxyls, carboxamides, anhydrides, silyls, ethers, thioethers, alkylsulfonyls, arylsulfonyls, selenoethers, ketones, aldehydes, esters, sugar, carbamate, carbonate, or $-(CH_2)_m-R_8$;

R_6, R_7, and R'_7, are absent or represent, independently, halogen, alkyl, alkenyl, alkynyl, aryl, hydroxyl, =O, =S, alkoxyl, silyloxy, amino, nitro, thiol, amine, imine, amide, phosphoryl, phosphonate, phosphine, carbonyl, carboxyl,

carboxamide, anhydride, silyl, ether, thioether, alkylsulfonyl, arylsulfonyl, selenoether, ketone, aldehyde, ester, or $-(CH_2)_m-R_8$, and

either R_6 and R_7, or R_7 and R'_7, taken together, form a susbstituted or unsubstituted ring or polycycle, and which includes a tertiary amine in the atoms which make up the ring;

R_8 represents an aryl, a cycloalkyl, a cycloalkenyl, a heterocycle, or a polycycle; and

m is an integer in the range 0 to 8 inclusive.